

***Quercus alba* - *Quercus* (*rubra*, *prinus*) / *Rhododendron calendulaceum* - *Kalmia latifolia* - (*Gaylussacia ursina*) Forest**

COMMON NAME White Oak - (Red Oak, Rock Chestnut Oak) / Flame Azalea - Mountain Laurel – (Bear Huckleberry) Forest
SYNONYM Appalachian Montane Oak Hickory Forest (Typic Acidic Type)
PHYSIOGNOMIC CLASS Forest (I)
PHYSIOGNOMIC SUBCLASS Deciduous forest (I.B)
PHYSIOGNOMIC GROUP Cold-deciduous forest (I.B.2)
PHYSIOGNOMIC SUBGROUP Natural/Semi-natural (I.B.2.N)
FORMATION Lowland or submontane cold-deciduous forest (I.B.2.N.a)

ALLIANCE *Quercus alba* - (*Quercus rubra*, *Carya* spp.) Forest Alliance

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community occurs at low to intermediate elevations in the southern Blue Ridge and in the Blue Ridge/Piedmont transition of Georgia, North Carolina, South Carolina, and Tennessee.

Great Smoky Mountains National Park

This community was sampled from both the Cades Cove and Mount Le Conte quadrangle. Historic samples of this community come from low elevations (1120 to 2600 feet) on the Calderwood quadrangle. On low elevations of the Cades Cove quadrangle this community was sampled north of the Cades Cove Loop Road, in the vicinity of Cave Ridge (low east-facing slope, 1791 feet) and west of Paw Paw Ridge at the head of a southwest-facing cove (2230 feet). In the southern portion of the quadrangle, at higher elevations, this community was sampled on the summits and convex high slopes of High Point; the southwest slopes below Gregory Bald; the southeastern high slopes below Moore Spring Camp; the summit ridge of Brier Lick Gap and the upper slopes south of Brier Lick Gap; the southwest middle slopes south of Doe Knob; the upper south slope of Greer Knob; on Twenty Mile Ridge south of Greer Knob; on the convex slopes north of Ekaneetlee Gap; on a south-facing side ridge of Bill Grill Ridge, south of Devils Tater Patch; and the convex west slopes of Mollies Ridge. This community was sampled from the northern portion of the Mount Le Conte quadrangle, on a low slope and low ridge in the vicinity of Copeland Creek (1590 and 1600 feet) and on a low slope above Dudley Creek (1680 feet).

ENVIRONMENTAL DESCRIPTION

Globally

These forests occur in a wide elevation range (2000-4000 feet) in the southern Blue Ridge and in the Blue Ridge/Piedmont transition, on protected sites, typically lower slopes, bottoms, and coves.

Great Smoky Mountains National Park

This community was sampled at low elevations (1120 to 2600 feet) in draws and on low to middle slopes with south and east aspects. At higher elevations (3800 to 4500 feet) this community occurred on middle to high slopes and summits, with north, west, and south aspects. This forest occurs on sites with well-developed soils.

MOST ABUNDANT SPECIES

Globally

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Quercus alba</i> , (<i>Quercus rubra</i> , <i>Quercus prinus</i> , <i>Quercus coccinea</i>), <i>Carya alba</i> , <i>Carya glabra</i>
Short shrub	variable
Herbaceous	variable

Great Smoky Mountains National Park

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Quercus alba</i> , <i>Carya glabra</i> , <i>Acer rubrum</i> , (<i>Carya alba</i> , <i>Quercus rubra</i>)
Subcanopy	<i>Carya alba</i> , <i>Cornus florida</i> , <i>Halesia tetraptera</i> var. <i>monticola</i>
Herbaceous	<i>Amphicarpaea bracteata</i> , <i>Dennstaedtia punctilobula</i> , <i>Desmodium nudiflorum</i> , <i>Polystichum acrostichoides</i> var. <i>acrostichoides</i> , <i>Thelypteris noveboracensis</i>

CHARACTERISTIC SPECIES

Globally

No information

Great Smoky Mountains National Park

Quercus alba, *Carya alba*, *Carya glabra*, *Cornus florida*, *Rhododendron calendulaceum*

VEGETATION DESCRIPTION

Globally

Deciduous forests of the southern Blue Ridge dominated or codominated by *Quercus alba*, occurring with other *Quercus* species (*Quercus rubra*, *Quercus prinus*, *Quercus coccinea*). Associated species are characteristically montane and typical of acidic forests. This association lacks indicators of circumneutral soils and also lacks low elevation dry sites species such as *Pinus echinata*, *Quercus falcata*, *Quercus stellata*, and *Quercus marilandica*. Species other than oaks that can be important in the canopy include *Carya alba*, *Carya glabra*, *Liriodendron tulipifera*, *Acer rubrum*, and *Magnolia fraseri*. Common species in the subcanopy/sapling strata include *Cornus florida*, *Acer rubrum*, *Carya* spp., *Liriodendron tulipifera*, *Magnolia fraseri*, *Nyssa sylvatica*, *Oxydendrum arboreum*, *Pinus strobus*, and *Halesia tetraptera*. Shrub cover is sparse to very dense and is often dominated by deciduous heaths. *Kalmia latifolia* and *Gaylussacia ursina* are usually present, but other shrub species can include *Euonymus americanus*, *Rhododendron calendulaceum*, *Vaccinium stamineum*, *Vaccinium pallidum*, *Viburnum acerifolium*, *Calycanthus floridus*, *Pyrolaria pubera*, *Ilex montana*, *Halesia tetraptera*, and *Hamamelis virginiana*. *Smilax glauca* and *Vitis rotundifolia* are common vines. The herbaceous stratum is sparse to moderate in coverage but rich in species, approaching that of rich cove forests. Associated herbaceous species vary with elevation. Some of the more constant species include *Parthenocissus quinquefolia*, *Dioscorea quaternata*, *Dichanthelium* spp., *Carex pennsylvanica*, *Chimaphila maculata*, *Desmodium nudiflorum*, *Goodyera pubescens*, *Maianthemum racemosum* ssp. *racemosum*, and *Trillium catesbaei*. Other species include *Dichanthelium laxiflorum*, *Aster acuminatus*, *Aster divaricatus*, *Galax urceolata*, *Galium latifolium*, *Lysimachia quadrifolia*, *Mitchella repens*, *Viola hastata* and *Melanthium parviflorum*. Often there is a dominant fern stratum, with *Thelypteris noveboracensis* and *Polystichum acrostichoides* most typically dominant. Other ferns include *Athyrium filix-femina* ssp. *asplenioides*, *Dennstaedtia punctilobula*, and *Dryopteris intermedia*.

Great Smoky Mountains National Park

The canopy and subcanopy of this forest are dominated by *Quercus alba*, *Carya glabra*, and *Acer rubrum*. At low elevations (below 2600 feet), *Carya alba* shares canopy dominance, and at high elevations (greater than 3800 feet) *Quercus rubra* often codominates. Occasionally *Quercus falcata*, *Liriodendron tulipifera*, and *Halesia tetraptera* var. *monticola* may have high coverage in the canopy and subcanopy. Other typical species in the canopy and subcanopy include *Cornus florida*, *Nyssa sylvatica*, *Oxydendrum arboreum*, *Amelanchier laevis*, *Quercus prinus*, and *Quercus velutina*. The shrub stratum has sparse to moderate coverage often with no clear dominant. Common shrubs include *Acer pensylvanicum*, *Castanea dentata*, *Gaylussacia ursina*, *Ilex opaca*, *Magnolia fraseri*, *Robinia pseudoacacia*, and *Sassafras albidum*. Herbaceous cover can be moderately dense and diverse with no clear dominant. Of the plots sampled *Amphicarpaea bracteata*, *Dennstaedtia punctilobula*, *Desmodium nudiflorum*, *Polystichum acrostichoides* var. *acrostichoides*, and *Thelypteris noveboracensis* most often have the highest coverage. Species with the greatest constancy include *Ageratina altissima* (var. *altissima* and var. *roanensis*), *Aster divaricatus*, *Carex* spp. (e.g. *Carex laxiflora* var. *laxiflora*, *Carex pennsylvanica*, *Carex virescens*), *Chimaphila maculata*, *Collinsonia canadensis*, *Dichanthelium* spp. (e.g. *Dichanthelium boscii*, *Dichanthelium commutatum*, *Dichanthelium dichotomum*), *Dioscorea quaternata*, *Galium* spp. (e.g. *Galium circaezans*, *Galium latifolium*, *Galium triflorum*), *Goodyera pubescens*, *Houstonia purpurea* var. *purpurea*, *Lysimachia quadrifolia*, *Maianthemum racemosum* ssp. *racemosum*, *Potentilla canadensis*, *Prenanthes* spp., *Solidago caesia* var. *curtisii*, *Thalictrum* spp. (e.g. *Thalictrum dioicum*, *Thalictrum thalictroides*), *Trillium* spp. (e.g. *Trillium catesbaei*, *Trillium undulatum*), *Uvularia* spp. (e.g. *Uvularia perfoliata*., *Uvularia puberula*., *Uvularia sessilifolia*), and *Viola* spp. (e.g. *Viola blanda*, *Viola canadensis*, *Viola cucullata*, *Viola hastata*, *Viola rotundifolia*, *Viola sororia*, *Viola tripartita*), although other species may occur. Common vines include *Smilax glauca*, *Smilax rotundifolia*, *Vitis aestivalis*, and *Vitis rotundifolia*.

OTHER NOTEWORTHY SPECIES

No information

CONSERVATION RANK G5

RANK JUSTIFICATION

DATABASE CODE Cegl007230

COMMENTS

Globally

This association is meant to cover the typical acidic, oak - hickory forests of the southern Blue Ridge Mountains. It has a broad concept, and there is potential for subdividing this type by moisture, elevation, or undergrowth.

Great Smoky Mountains National Park

The low elevation (below 2000 feet) *Quercus alba*-dominated forests of the pilot quadrangles have some similarities with forests defined in the *Quercus alba* - *Quercus (falcata, stellata)* Forest Alliance but overall are not dry enough to fit the concept of forests in this alliance. It is likely that *Quercus alba*-dominated vegetation in the Park represents a subset of the Global concept of *Quercus alba* - *Quercus (rubra, prinus)* / *Rhododendron calendulaceum* - *Kalmia latifolia* - (*Gaylussacia ursina*) Forest (CEGL007230). Samples from the Park can be segregated into two distinct groups: *Quercus alba*-dominated forests below 2200 feet, distinguished by high coverage by *Carya alba*, *Cornus florida*, *Liriodendron tulipifera*, and *Polystichum acrostichoides* var. *acrostichoides*; and those over 4000 feet elevation that have greater coverage by *Quercus rubra*, *Amelanchier laevis*, *Magnolia acuminata*, *Ilex montana*, *Rhododendron calendulaceum*, and *Dennstaedtia punctilobula*. These higher elevation examples still have canopies with high coverage by *Quercus alba* and *Carya glabra*, but the overall composition begins to resemble CEGL007300, particularly along the Tennessee / North Carolina state line on the Cades Cove quadrangle where *Quercus rubra* and *Quercus alba* dominance intergrade and may make delineation of this type difficult.

REFERENCES

Nelson 1986, Schafale and Weakley 1990